

Curello *et al.*
Appl. No. 10/725,236

REMARKS

Reconsideration of this Application is respectfully requested.

Claims 1-11, 28-47 and 53-60 are pending in the application, with 1, 36 and 60 being the independent claims. Claims 12-27 and 48-52 were previously cancelled without prejudice to or disclaimer of the subject matter therein. In response to the election of species, claims 3-11, 37, 38, 41, 42, 44 and 45 are withdrawn from consideration pending the allowance of generic claims 1 and 36. No claim is amended in this Response.

Since the following remarks in response to the final Office Action place the application in better form for allowance or appeal, the entry of the following remarks is respectfully requested. Applicants respectfully request that the Examiner reconsider all outstanding objections and rejections and that they be withdrawn.

Claims 1, 2, 28-31, 36, 39, 40, 43, 46, 47, 53-55 and 60 are rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Pat. Appl. Pub. 2003/0129464 to Becerra *et al* in view of U.S. Patent 6,641,240 to Hsu *et al*. (Final Office Action at p. 3.) In this group of claims, claims 1, 36 and 60 are the independent claims.

Claim 1 recites a "means for measuring a property between a first location movable within the fuel supply and a second location on the fuel cell or on the electronic equipment," and claim 36 recites "a first sensor associated with the fuel supply and spaced a distance apart from a second sensor associated with the fuel cell or the electronic equipment." (emphasis added). As stated in Applicants' previous Amendment and Response filed on September 28, 2005, the combination of Becerra *et al* and Hsu *et al* does not disclose the underlined limitations.

The Examiner apparently agrees with the Applicants that neither Becerra et al nor Hsu et al discloses a second sensor or a second location on the fuel cell or on the electronic equipment. However, the Examiner reasoned that since both of the devices in Becerra et al and Hsu et al

Curelio *et al.*
Appl. No. 10/725,236

"can be disposable items [, o]ne of ordinary skill would clearly recognize that, by decreasing the number of parts one could decrease the overall manufacturing costs associated with the disposable items. This decrease in cost for manufacturing can result in decreased costs to customers or increased profitability for the manufacturer." (final Office Action at p. 2)(emphasis added). Applicants respectfully traverse the Examiner's rationale.

The PTO Board of Patent Appeals and Interferences ("Board") has specifically disallowed the rationale of decreased manufacturing costs as a motivation to combine references in support of an obviousness rejection. *Ex parte K.S. Bickford, H.K. Staffin and R.N. Roaper*, Appeal No. 1999-0546, 2000 WL 33520314 (Bd. Pat. App. & Interf. 2000) (Attached hereto as Exhibit A). In the *Bickford* decision, in support of the final rejection based on § 103 the Examiner states that to employ a conveying system disclosed in one reference to treat a plurality of metal castings in another reference "would have been obvious ... to reduce labor and energy costs." *Id.* at *2. The Board overruled the Examiner's rationale and held that "[r]educed costs may be achieved in a variety of ways ... and we do not view the examiner's speculative cost reduction alone as providing a motivation to combine these prior art teachings so as to arrive at appellants' claimed process." *Id.* at *3.

The facts in the prosecution of the present invention are substantially similar to the facts in the *Bickford* decision. A hypothetical combination of Becerra et al and Hsu et al may or may not produce cost savings, and these references themselves are silent on cost reduction, and it is speculative to guess as to where and how those cost savings might be realized.¹

¹ As a matter of fact, the only disclosure of cost savings is found in Applicant's present specification at p. 9, lines 17-21 for associating the second sensor with the fuel cell or electronic equipment. It is impermissible hindsight to use Applicants' own disclosure as a road map to combine references.

Circello *et al.*
Appl. No. 10/725,236

Applicants respectfully submit that the Examiner's reduced manufacturing cost rationale to support and maintain the final rejection cannot stand in view of the *Bickford* decision.

The Examiner also suggests that there is no change in functionality when the non-moving sensor is moved from the ink supply to the fuel cell or electronic equipment. Again, Applicants respectfully traverse this suggestion. First, both the Becerra et al and Hsu et al references are silent on moving a sensor to the fuel cell. Furthermore, as disclosed in the present specification from p.8 line 31 to p.9 line 2 when the second sensor is located on the fuel cell/electronic equipment the aggregate dielectric constant of the outer shell of the fuel cartridge and the liner, in addition to the dielectric constant of the fuel, have to be taken into consideration. In contrast, as disclosed in FIGS. 2A and 7A and in column 4, lines 1-4 of the Hsu et al reference, only the ink is disposed between the two electrode plates. To have the outer shell and the liner intervene between the plates/sensors could significantly alter the aggregate dielectric constant between the plates/sensors. For example, the dielectric constant for methanol is 33 and for water is 80, while the dielectric constant for the outer shell, which can be plastics, can be about 2.3 or 2.4 for LDPE/HDPE and ABS, about 3.7 for acetyl and 6-9 for neoprene. Due to the significant difference between dielectric constants, having the outer shell and the liner, as well as the fuel, between the sensors or plates can significantly change the characteristics and functionality of the capacitance therebetween. Becerra *et al* and Hsu *et al* are completely silent on this, and the only disclosure is from Applicant's own specification. For this reason, one of ordinary skill in the art in a hypothetical combination of Becerra et al and Hsu et al would not move the non-moving sensor or plate from the ink supply from Hsu to the fuel cell, because it is more difficult to control and there is no motivation to do so.

Curelio et al.
Appl. No. 10/725,236

The Examiner also states on page 2 of the final Office Action that "just because the Becerra et al envisions a simple device is not sufficient to eliminate any of the other sensors that might be added to determine fuel level." (emphasis added). Applicants respectfully traverse this statement. "Not sufficient to eliminate" other possibilities is simply not an acceptable legal standard to determine motivation to combine references. To the contrary, there must be actual affirmative suggestions in the prior art. The Board in the attached *Bickford* decision quoting the Court of Appeals for the Federal Circuit clearly states that "[the] mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desireability of the modification" (citations omitted).

The Examiner also states that the level sensor of Hsu et al is also "simple and accurate" and "is probably more accurate than the system shown in Becerra et al." (final Office Action at p.3)(emphasis added). Applicants respectfully request that the Examiner withdraw this statement, because there is no factual evidence in the record to suggest that the capacitance sensor in the Hsu et al reference is accurate, or is more accurate than the visual fuel gage in Becerra et al. Furthermore, a probability of something occurring, as suggested by the Examiner, is not factual evidence.

The Examiner also concludes that when the fuel container is placed inside the electronic device² "the fuel [in Becerra et al] may be clear and not easily viewable through the slot. Therefore, it would be obvious to determine the fuel remaining and display it via some other means." (Final Office Action at p. 4.) However, Becerra et al's disclosure contradicts Examiner's conclusion. In paragraph 47 and in claim 7, Becerra et al clearly states that a colored plate moves with the fuel and its movement is visible through the window of the fuel gage to

² Applicants also respectfully direct the Examiner's attention to FIG. 4, where the fuel container (404) is shown to be clearly outside of the broken line indicating the fuel cell (402).

Curello *et al.*
Appl. No. 10/725,236

indicate fuel level. The color of the fuel does not affect the functionality of the fuel gage in
Becerra *et al.*

Applicants believe that all of the Examiner's rationales supporting the rejection of independent claims 1 and 36 have been fully addressed, and that these claims are patentable over the cited art of record. The allowance of claims 1 and 36 is earnestly solicited.

Independent claim 60 is similar to claim 36, except that it does not require that the second sensor be associated with the fuel cell or the electronic equipment and is, therefore, broader than claim 36. Applicants submit that claim 60 is also patentable over the combination of Becerra *et al* and Hsu *et al*, because there is no motivation for one of ordinary skill the art to combine these references as discussed in details above.

Claims 2 and 28-31 depend from and add further features to independent claim 1 and claims 39, 40, 43, 46, 47, and 53-55, depend from and add further features to independent claim 36 and are patentable over this combination of references for this reason alone. While it is not necessary to address the Examiner's rejections of these claims at this time, Applicants reserve the right to support their patentability, when necessary.

Claims 32-35 and 56-59 are rejected under 35 U.S.C. §103(a) as being unpatentable over the combination of Becerra and Hsu as applied to claims 1 and 36 above, and further in view of U.S. Pat. Appl. Pub. No. 2003/0006245 to Rodgers and U.S. Patent No. 5,816,224 to Welsh *et al.* As discussed above, claims 1 and 36 are patentable over the Becerra *et al* and Hsu *et al* references. The Rodgers and Welsh *et al* secondary references do not make up for the deficiencies in the primary references. Claims 32-35 and 56-59 depend from and add further features to claims 1 and 36 and are patentable over this combination of references for this reason alone. While it is not necessary to address the Examiner's rejection based on the Rodgers and

Curello *et al.*
Appl. No. 10/725,236

Welsh et al references in details at this time, Applicants note that the Rodgers reference describes a device to determine the weight of an inner vessel 16 depending on the buoyancy of the vessel, i.e., the Rodgers device is a scale. Rodgers does not disclose a fuel gage and is therefore non-analogous art. Applicants also note that the Welsh *et al* reference discloses a float 112 within a pressure containing body 110 of a so-called synergizer 80 (col. 17, lines 15-24), which apparently is not a fuel tank since the fuel tank is designated as reference number 140 in FIG. 24. Additionally, Welsh et al discloses that float 112 includes a magnet 114 to actuate a magnetic switch 82. This magnetic switch is not a fuel gage. Furthermore, Welsh et al states that "other proximity switches, such as capacitance switch, a hall effect switch or an optical switch can also be employed." *Id.* These proximity switches are also not fuel gages, as claimed in the present invention, and Welsh et al is also non-analogous art. Applicants reserve the right to further distinguish the Rodgers and Welsh et al references when necessary.

All of the stated grounds of objection and rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding objections and rejections and that they be withdrawn. Applicants believe that a full and complete reply has been made to the outstanding Office Action and, as such, the present application is in condition for allowance.

Curelio et al.
Appl. No. 10/725,236

If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Respectfully submitted,



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